Zackenberg Research Station

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Zackenberg Research Station

The Zackenberg Research Station (74° 30′N 20° 30′W) is situated in the central Northeast Greenland. The station is located near a small 1,500 ft. (450 m) runway built to facilitate transport to the station. It consists of six wooden houses with a total area of 2,900 sq. ft. (275 sq. m). The houses hold mess and kitchen; different laboratories; offices for scientists, for monitoring program staff, and for logisticians; bathing facilities; and storage room for provisions and bedrooms for the staff. Visiting scientists and staff staying at the station for shorter periods are accommodated in insulated tents, Weatherhaven shelters.

A new accommodation building and a house with garage, workshop, and room for generators are added to the station later. Transport to/from Zackenberg is carried out by chartered short takeoff landing aircrafts via island. The terrestrial monitoring and research area comprises the 198 square miles (512 sq. km) drainage basin of the Zackenbergelven River, while marine monitoring is carried out in the adjoining fjord Young Sound. The study area is mountainous with several peaks reaching 3,300–4,600 ft. (1,000–1,400 m). The lowland consists of a 1.25–1.86 mile (2–3 km) wide valley with the 88-foot (27-m) deep lake Store Sø situated about 10 miles (15 km) from the station. To the west, the valley penetrates to the AP Olsen Land Ice Cap. The Zackenberg area is divided by a fault zone separating areas with Cretaceous and Tertiary sandstones topped by basalts above 2,000 ft. (600 m) above sea level to the east from Caledonian gneissic and granite bedrock to the west. The plant communities consist of Dryas heath, Cassiope heath, Salix snowbed, grassland, and fen. Vegetation covers approximately 80 percent of the area below 980 ft. (300 m) above sea level. The climate is High Arctic with an average annual temperature of 18°F (−7.8°C) and a precipitation of around 1 inch (2.61 cm), whereof approximately 85 percent is solid. Permafrost reaches down to 980 ft. (300 m), and the annual maximum depth of the active layer varies between 40 and 90 cm in most years. During the 1930s, trappers used the area, mainly for Arctic fox pelts. The Danish Peary Land Expeditions (1947–1950) and the British North Greenland Expedition (1952–1954) have used the fine conditions at Zackenberg as base.

When the Danish Polar Center was established in 1989, the establishment of a permanent monitoring and research facility in High Arctic Greenland became a core target. Most of High Arctic areas in Greenland are protected within the National Park of North and East Greenland, which is classified as a Man and Biosphere

Reserve with specific obligations for monitoring and research. In 1991, an expedition was organized to survey the area for suitable sites for a research station. The expedition pointed at the Zackenberg valley as the most appropriate site. The station was built and was active in 1995. The basic idea is to carry out long-term monitoring research at drainage basin scale covering both physical and biological aspects of ecology to track trends and causes to changes. The monitoring is carried out by Zackenberg Ecological Research Operations; it is organized in coordinated elements: ClimateBasis, GeoBasis, BioBasis, and MarineBasis. An annual report including collected basic data and summaries of ongoing research is published. A summary of research results is published in *Advances in Ecological Research* Vol. 40 (2008).

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See also: Arctic and Antarctic Research Institute (AARI); Greenland; Weddell #1 Antarctic Drifting Station

Further Reading

Andersson, T., J. Böcher, B. Fredskild, B. H. Jakobsen, H. Meltofte, G. S. Mogensen, and B. Muus. *Rapport om muligheden for placering af en naturvidenskabelig forskningsstation ved Zackenberg, Nationalparken i Nord- og Østgrønland.* Copenhagen, Denmark: University of Copenhagen and Danish Polar Center, 1991, p. 48.

Høye, T., and D. Sikes. "Arctic Entomology in the 21st century." *Canadian Entomology* 145 (2013): 125–30.

Zhongshan (Sun Yat-sen) Station

One of China's two permanent research stations in Antarctica, located on the Larsemann Hills of Princess Elizabeth Land (East Antarctica, in the Australian-claimed sector) at 69° 22′S 76° 22′E, is named after the British-educated revolutionary considered to be the father of modern China.

Scientists at the station conduct research all year-round in, among others, the fields of meteorology (including the study of the ionosphere and of upper atmosphere physics), geomagnetism, sea ice, and seismology. In addition, during the summer season, research is also conducted on geology, biology, medicine, marine science, polar physics, glaciology, and the environment. The station is also active in the fields of lake deposits, and ozone and ultraviolet radiation observation.

The station was opened on February 26, 1989, by the Fifth Chinese Antarctic Research Expedition (CHINARE), in an area located within the Antarctic Circle and along the southeast coast of Prydz Bay, where the polar night lasts 58 days and temperatures drop up to −33.6°C. Two other research stations are located nearby: Australia's Law Base and Russia's Progress Station. It consists of 15 buildings,